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1,16,7,010

PATENT SPECIFICATION

DRAWINGS ATTACHED

1,167,010

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COMPLETE SPECIFICATION

Mounting for shock absorbers or springs on vehicles.

I, HELMUT ELGES, a citizen of the Federal Republic of Germany, of 4801 Quelle bei Bielefeld, Erika-strasse, Germany, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be formed, to be particularly described in and by the following statement:

The present invention relates to a mounting for shock absorbers or springs, especially but not exclusively on vehicles. With previous shock absorber and spring arrangements on motor vehicles anti-vibration parts are fitted between the sleeves of these parts and their trunnions in order to prevent locking. It has been found in practice, however, that these anti-vibration parts, in spite of using the best possible materials, wear out relatively quickly and must therefore be renewed frequently.

An object of the present invention is to obviate or mitigate this disadvantage.

According to the present invention there is provided a mounting for shock absorbers or springs, especially but not exclusively for motor vehicles, including a self-aligning bearing adapted for fitment between the shock absorber or spring and a part to which it is to be mounted, each bearing including an inner ring which has a part-spherical external surface and an outer ring which has a correspondingly concave curved internal surface.

Embodiments of the present invention will now be described by way of example with reference to the accompanying drawings, in which,

Fig. 1 shows an elevation of a vehicle shock absorber with self-aligning bearings fitted at both ends,

Fig. 2 shows a self-aligning bearing of Fig. 1 partly in elevation and partly in section, and

Figs. 3 and 4 show elevations of another embodiment of a self-aligning bearing each Fig. showing one half of the bearing in elevation and the other half in section.

In accordance with Fig. 1 there are fitted between the shock absorber 1 and its trunnions 2 and 3 self-aligning bearings. These bearings consist according to Fig. 1 and Fig. 2 of an inner ring 4 provided with a partly spherical external surface and an outer ring 5 provided with a correspondingly concavely curved inner surface.

The inner ring 4 is arranged on a cylindrical bearing case 6 and secured by spring rings 7 or the like against axial displacement on the case 6. The outer ring 5 of the self-aligning bearing consists in the embodiment shown in Fig. 1 and Fig 2 of toughened flexible plastics material and is arranged in a metal ring 8 with a flat bottomed U-shaped profile. The bearing surface of the outer ring 5 has in the proximity of its outside edges ring-shaped cavities 5' which are filled with grease or the like which causes a good seal between the inner ring 4 and the outer ring 5. This sealing effect is aided by the close fitting edges of the outer ring 5 which lie on the outside of the cavities 5'.

The outer ring 5 and the metal ring 8 which holds it in place are enclosed externally by two sheet metal bushes 9 of the same shape which at their peripheral edges facing each other have each a flange 10. The flanges 10 are connected to each other firmly by rivets 11 but can also be welded together or bolted.

Heads 12 are formed integral with the metal bushes 9, the hoods enclosing the caps 13 of the shock absorber 1 and being welded to them.

The outer bearing ring 5 can alternatively be made from metal alloy. In this case the bearing surface is part or wholly designed with a supporting layer 14 with good bearing properties, such as polytetrafluorethylene.

[Price 4s. 6d.]

It is also possible to mount the outer ring 5 of the self-aligning bearing directly in the metal bushes 9 so that the metal ring 8 is no longer required.

In the embodiment shown in Figs. 3 and 4 one part of the outer bearing ring is formed from the concavely curved surface 15' of a sheet metal cap 15 into which the end of a shock absorber or spring 1 is welded whilst the other part of the ring is formed from a piece of metal 17 provided with a concave curve and connected to cap 15 by bolts 16.

Between the outer ring parts 15 and 17 is mounted the inner ring 18 provided with a partly spherical external surface. This inner ring has on opposite sides of its part-spherical bearing surfaces cylindrical planes 19. Between these cylindrical planes 19 and the corresponding planes of the outer ring parts 15 and 17 are arranged sealing rings 20 of resilient material which effectively prevent undesirably penetration of dust and dirt into the interior of the hinged bearing.

In order to prevent the sealing rings 20 falling out of their mounting the outer edges 17' of the metal piece 17 are flanged inwards (see Fig. 3).

Between the part-spherical bearing surfaces of the bearing a layer film 21 preferably of brass is fitted and provided with cavities for holding grease.

The parts 15 and 17 which make up the outer bearing ring can be connected to each other not only by bolts 16 but by other methods such as for example by spot welding. In addition, instead of the cap 15 made from sheet metal, sheet metal parts of other shapes can be used which have a part-spherical concave curve 15' for a part-spherical inner bearing ring 18.

Futher, the mountings described above may be used for mounting a coil spring to a vehicle.

WHAT I CLAIM IS:-

1. A mounting for shock absorbers or springs, especially but not exclusively for motor vehicles, including a self aligning bearing adapted for fitment between each end of the shock absorber or spring and a part to which it is to be mounted, each bearing including an inner ring which has a part-spherical external surface and an outer ring which has a correspondingly concavely curved internal surface.

2. A mounting as claimed in Claim 1, in which the outer ring of each self aligning bearing is enclosed by two sheet metal bushes of the same shape and connected to each other the bushes including hoods adapted to accommodate a shock absorber or spring leg.

3. A mounting as claimed in Claim 1 or Claim 2, in which the outer ring of each bearing consists of a metal alloy or a plastics material.

4. A mounting as claimed in any one of Claims 1 to 3 in which the outer ring of each bearing is provided in the proximity of its outer edges with ring-shaped cavities.

5. A mounting as claimed in Claim 4, in which the ring-shaped cavities are filled with grease or the like.

6. A mounting as claimed in Claim 1 or 2, in which the bearing surface of the outer ring of each bearing is wholly or partly made up of a film with good bearing properties such as polytetrafluorethylene.

7. A mounting as claimed in Claim 1 or Claim 2, in which the inner bearing ring of each bearing is manufactured from a material with good bearing properties.

8. A mounting as claimed in Claim 1, in which one part of each outer bearing ring is formed from the concavely curved surface of a sheet metal cap adapted to accommodate the end of a shock absorber or spring, whilst the other part of the each outer ring is made up of a piece of metal having a similarly concave curve and connected to the cap.

9. A mounting as claimed in Claim 1 and in Claim 8, in which the inner ring of each bearing and parts of each outer ring have on opposite sides of their part-spherical curved bearing surfaces cylindrical planes between which flexible sealing rings are arranged.

10. A mounting as claimed in Claim 9, in which the outer edges of the cylindrical planes of the bearing pieces are flanged inwards.

11. A mounting as claimed in Claim 8, in which between the inner bearing ring and the outer ring parts of each bearing is arranged a layer of a material with good bearing properties.

12. A mounting as claimed in Claim 11, in which the layer has cavities for holding a lubricant.

13. A mounting as claimed in Claim 8, in which the parts which make up the outer ring are connected to each other detachably by bolts.

14. A mounting as claimed in Claim 8, in which the parts which make up the outer

ring are welded together.

15. A mounting for shock absorbers or springs, especially but not exclusively in motor vehicles, substantially as herein described with reference to Figs. 1 and 2 and Figs. 3 and 4 of the accompanying drawings.

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1167010 COMPLETE SPECIFICATION

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Sheet 1

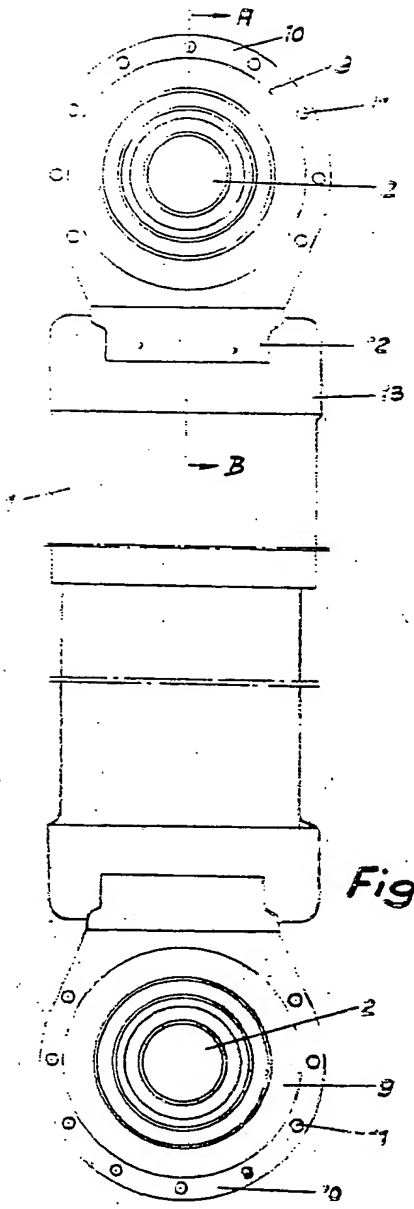

Fig. 1

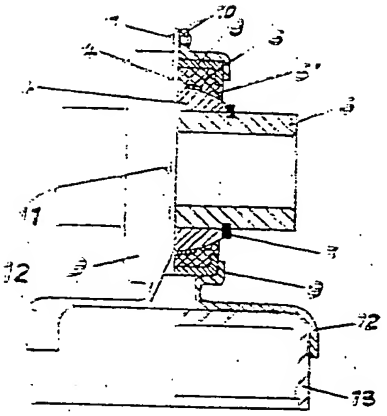

Fig. 2

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Sheet 2

Fig. 3

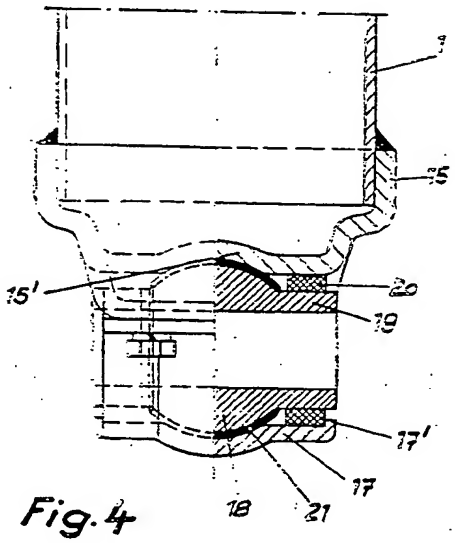

Fig. 4